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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,067	12/28/2006	Thorsteinn Halldorsson	056226.56748US	6542
23911 7590 12/21/2007 CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300			EXAMINER RATCLIFFE, LUKE D	
			ART UNIT 3662	PAPER NUMBER
			MAIL DATE 12/21/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/552,067

Applicant(s)

HALLDORSSON ET AL.

Examiner

Luke D. Ratcliffe

Art Unit

3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 December 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some.* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 34 is objected to because of the following informalities: the applicant appears to have a typo with the word "Wheein" the examiner believes it should be "Wherein" and will examine the claim as such. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21, 22, 24-29, and 32-36 are rejected under 35 U.S.C. 102(b) as being anticipated by McGill (6313908).

Referring to **claims 21 and 33**, McGill shows a method of detecting wind velocities using a Doppler lidar system including emitting a laser beam of a defined wavelength to a space area (figure 6A), receiving light backscattered from the space area (column 1 line 40-53), determining a Doppler shift by means of an interferometer (column 1 lines 40-53), measuring an intensity distribution (figure 6B and column 7 line 44 - column 8), and comparing the intensity distribution with a family of reference patterns (column 6 lines 66 - column 7 line 44 and column 8 line 19 - column 9).

Referring to **claim 22**, McGill shows the interferogram is ring shaped and is imaged directly on a two dimensional photodetector (figure 7a).

Referring to **claim 24**, McGill shows a reference pattern with the smallest deviation with respect to the measured interferogram is used to determine the Doppler shift (column 6 line 30-51).

Referring to **claim 25**, McGill shows the reference pattern contains the velocity of the atmosphere relative to the Doppler lidar system as a parameter (column 6 line 30-51).

Referring to **claim 26**, McGill shows the variation of the velocity of the atmosphere relative to the Doppler lidar system is determined from several successive measurements (column 1 line 40-51).

Referring to **claim 27**, McGill shows the laser beam is pulsed and a portion of a laser pulse is in each case used for defining a time related reference point in order to determine the distance of the backscattering space area by meas of the transit time of a residual portion of the laser pulse (column 1).

Referring to **claim 28**, McGill shows a portion of the laser beam is received and recorded directly and without backscattering and from the intensity distribution a transfer function of optical components is determined or calibration is carried out (column 1).

Referring to **claim 29**, McGill shows at least one density and temperature of the space area is determined based on the reference patter with the smallest deviation with respect to the measured interferogram (column 7 line 37-43).

Referring to **claim 32**, McGill shows the laser beam is emitted in different directions in order to determine the wind velocity vector by measuring the Doppler shift in the different directions (column 7 line 44-64).

Referring to **claim 34**, McGill shows the photodetector is a two dimensional photodetector which comprises an image intensifier and one of a CCD and a CMOS array (column 8 line 54).

Referring to **claim 35**, McGill shows a transfer path for a portion of the laser beam is provided between the transmitting device and the receiving device in order to record the generated laser beam directly in the receiving device (column 1 line 40-51).

Referring to **claim 36**, McGill shows an interferometer is a Fabry-Perot interferometer which generates ring shaped interference patterns (column 8 line 54).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 23, 31, and 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGill (6313908).

Referring to **claim 23**, McGill shows the interferogram is ring shaped and is imaged directly on a two dimensional photodetector (figure 7a). However it

would be obvious to also use a strip shaped interferogram because it is well known to use them both and such a substitution is well known and adds no new or unexpected results.

Referring to **claim 31**, while McGill does not explicitly disclose the mounting of the system on an aircraft it would be obvious to do so because it is a common application of a Lidar system and adds no new or unexpected results.

Referring to **claim 38**, While McGill does not show pulsed laser beams in the UV range it is well known to have pulses in the UV range and adds no new or unexpected results.

Referring to **claim 39**, While McGill does not explicitly show field programmable gate arrays it would be obvious to include them because it is well known and adds no new or unexpected results.

Referring to **claim 40**, While McGill does not explicitly show the analyzing unit comprises a module for determining the transfer function of components on the reception side of the Doppler lidar system it would be obvious to do so because its well known and adds no new or unexpected results.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over McGill (6313908) in view of CALDWELL (6894768).

Referring to **claim 30**, McGill shows a method of detecting wind velocities using a Doppler lidar system including emitting a laser beam of a defined wavelength to a space area (figure 6A), receiving light backscattered from the space area (column 1 line 40-53), determining a Doppler shift by means of an interferometer (column 1 lines 40-53), measuring an intensity distribution (figure

6B and column 7 line 44 - column 8), and comparing the intensity distribution with a family of reference patterns (column 6 lines 66 - column 7 line 44 and column 8 line 19 - column 9). However McGill does not show the Lidar system mounted on board a moving system.

Caldwell shows a similar Lidar system that is mounted on board a moving system (column 3 line 59-column 4 line 13). It would be obvious to modify McGill to include the on board system as shown by Caldwell because this is a well known way to use the system.

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over McGill (6313908) in view of Korb (5216477).

Referring to claim 37, McGill shows a method of detecting wind velocities using a Doppler lidar system including emitting a laser beam of a defined wavelength to a space area (figure 6A), receiving light backscattered from the space area (column 1 line 40-53), determining a Doppler shift by means of an interferometer (column 1 lines 40-53), measuring an intensity distribution (figure 6B and column 7 line 44 - column 8), and comparing the intensity distribution with a family of reference patterns (column 6 lines 66 - column 7 line 44 and column 8 line 19 - column 9). However McGill does not show the interferometer is a Fizeau interferometer which generates strip shaped interference patterns.

Korb teaches the use of a similar Lidar system that includes a Fizeau interferometer (column 13 line 10-29). It would have been obvious to modify McGill to include the Fizeau interferometer because this is a common type of


interferometer and it would be a simple substitution of one part for another and adds no new or unexpected results.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luke D. Ratcliffe whose telephone number is 571-272-3110. The examiner can normally be reached on 10:00-5:00 M-Sun.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LDR


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